SUPERVISING ENGINEERS AND STREET RAILWAY SERVICE:

The Value of a Board of Supervising Engineers in Securing Efficient Street Railway Service

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Supervision of the affairs of public utility companies in the interests of the general public has become necessary in order to insure correct financing, proper maintenance of physical property, and adequate service at reasonable rates.

Supervision of public utility companies, in general, has been provided for in several of our States; in some instances by increasing the powers of the state railroad and warehouse commissions, as, for instance, in Massachusetts and Wisconsin, or by creating public service commissions, as was done in the State of New York.

The United States Government has taken up the supervision of steam railroads through the Interstate Commerce Commission, and also is conducting investigations into various public service corporations and combinations of corporate interests to ascertain if their operation is strictly within the law.

The functions of railroad and warehouse commissions, public service commissions and the Interstate Commerce Commission are general in their scope. The services rendered by the national and state commissions to the communities over which they exercise jurisdiction have been of notable value. Public carriers and public utility corporations of all classes have felt the chastening influence of those bodies, and have been led to correct abuses which have developed. The work of the state commissions in the regulation of street railways has been extensive and of the highest order of efficiency. The careful and far-sighted control exercised, for example, by the Massachusetts commission over the capitalization of public service corporations under its jurisdiction, and the progressive and enlightened administration of the Wisconsin and New York commissions have brought credit upon these bodies and satisfaction to the public at large.

The growth in the size of our large cities and in the complexity of transportation problems resulting therefrom has brought upon the state commissions an enormous amount of work of a highly specialized character, requiring the devotion of a large amount of time and the possession of special knowledge and skill.

The result has been that in many States, possessing large cities, the state commissions have found their time largely monopolized in considering the transportation difficulties of a relatively small portion of the area under their jurisdiction. The enormous amount of detail work which is involved in the investigation of traffic conditions, the settlement of fare and franchise controversies, and in the many other questions surrounding city railways, has resulted in delay in settling cases arising in other portions of the State. The feeling, therefore, has grown up that the state commission should either be augmented or relieved from handling the transportation problems of our large cities.

The methods used in administering the affairs of street railways in large cities are various. New York, for example, has created two commissions with coincident powers, one exercising exclusive jurisdiction over Greater New York City, and the other controlling the balance of the State. This plan has worked admirably. The objection which was raised at the time the law was in a formative stage, that there would be a clash between the two commissions, has not, so far, materialized.

The State of Illinois for many years has been engaged in the regulation of corporations conducting "business affected with a public interest." For many years the State Railroad and Warehouse Commission possessed broad powers and exercised an extensive influence over quasi-public corporations. The work of the commission, however, has been largely centered upon disputes concerning facilities and charges. The commission possesses no power over the capitalization of corporations, and has never engaged extensively in the work of what might be termed "constructive regulation," such as, for example, the analytical criticism of the transportation service, with suggestions for its betterment.

As a result of the prolonged controversy between the city of Chicago and its street railways, and the litigation arising therefrom, an important step in the development of an efficient system of public regulation of this type of common carrier has been made. "The

Board of Supervising Engineers, Chicago Traction," was created by the ordinances of the City Council of Chicago, granting to the Chicago City Railway Company and the Chicago Railways Company, which own and operate street railway lines within the corporate limits of the city, the municipal rights under which they now operate. These ordinances were passed on February 11, 1907, and in addition to conferring the franchise rights upon these companies, create and define the powers of the Board of Supervising Engineers.

The Board of Supervising Engineers is the outgrowth of a long and illuminating struggle between the city of Chicago and its street railway companies for the establishment of a practical relationship. The readers of THE ANNALS are already familiar with the history of this controversy, through the articles by Dr. Willard E. Hotchkiss, of Northwestern University, upon "Chicago Traction: A Study in Political Evolution," and "Recent Phases of Chicago's Transportation Problem," appearing in the November, 1906, and the May, 1908, issues of THE ANNALS, respectively. It will, therefore, only be necessary for me to review briefly those circumstances which are responsible for the creation of the Board of Supervising Engineers, Chicago Traction.

Street railways in Chicago were originally constructed under various ordinances passed by the city in or about 1858. Under these ordinances the companies were given the right to operate horse railways in certain specified streets for a period of twenty-five years, and thereafter until the city of Chicago should purchase the tangible value of the company at its appraised valuation. The ordinances provided that the city could exercise the right to purchase after six months' notice, and by a series of court decisions, rendered at later dates, it was held that this right was assignable to any third party which the city might select. Numerous subsequent laws and ordinances were passed, designed to extend the franchise privileges of the street railways in Chicago. Under these ordinances, and particularly those passed in 1865, the street railway companies later set up the claim that their franchises were inviolable for a period of ninety-nine years from the date of the original grant. Ugly charges of improper influences exerted upon the City Councils and state legislature were publicly made, and, as a result, the relations between the municipality and the companies became extremely bitter. In spite of the friction, however, which was always more or less evident,

the city continued to grant from time to time the right to build extensions to the various companies occupying its streets, usually providing, however, that the rights to these extensions should terminate in twenty years from the date of the passage of the ordinance.

The expiration of the tweny-five-year period in 1883 found neither the companies nor the city ready to test their relative rights, and after considerable negotiation it was decided to extend the grants for a period of twenty years, without prejudice to the rights of either party. When the extension expired, in 1903, the majority of the people of Chicago had come to believe that a radical revision in the relations of the companies and the city should be made. The request of the companies for a further extension upon the terms heretofore prevailing was refused, and it was evident that no compromise was possible. A legal battle, notable for its importance and stubbornness, was begun. The franchise rights of the companies were first reviewed by the state courts, which held that the Act of 1865 extended the franchise of the corporation for ninety-nine years. The case was appealed to the Supreme Court of the United States, where the claims of the companies were substantially demolished. (Blair *vs.* Chicago, 201 U. S. 400.)

During the litigation the existing status had been preserved by ordinances reserving all of the city's right, but granting to the companies a license to operate until such time as the dispute might be finally settled.

While the legal battle was progressing, the city had not been idle. Confident in ultimate success, the advocates of public participation in street railway matters had secured the passage of a statute by the legislature of Illinois, in 1903, authorizing municipalities to construct or acquire street railways, and to provide funds therefor by the issue of special certificates, secured solely by the properties and revenues of the street railways themselves. The proposition to take advantage of this statute was ratified by a popular vote in the city of Chicago by an overwhelming majority. An ordinance was passed, authorizing the issue of $75,000,000 of special certificates for the purpose of acquiring all of the street railway lines in the city, including those in litigation. The validity of the ordinance was upheld by the lower courts, but the value of the statute was practically destroyed by the Supreme Court of Illinois, which

decided that the certificates would constitute a debt of the city, and could not be issued, because the city had already reached its constitutional debt limit.[1]

This defeat, however, did not give to the street railway interests more than a brief respite. The strong public sentiment, as shown at the election authorizing the issue of special certificates, made it likely that a constitutional amendment could in time be forced to adoption which would raise the debt limit or exclude this class of security from the computation. There could be no dispute, moreover, of the right of the city to assign to any successor company the privilege, reserved under the Act of 1858, of purchasing the street railway properties at their appraised value.

When the Supreme Court of the United States upheld the Act of 1858, the companies, therefore, found themselves in an exceedingly weak position, which necessitated that they deal fairly and generously with the city.

The nature of the situation which presented itself has been admirably analyzed by Walter L. Fisher, special traction counsel, in his brief in the so-called "Venner Case," before the Supreme Court of Illinois, as follows:

> It must be apparent that there was but one basis possible for an adjustment between the companies and the city. The city already had the right to terminate all of the unexpired grants of the companies, except those under the comparatively few unexpired ordinances passed after 1887. It could clearly take possession of all the streets upon which the franchises had then expired, and could turn over its right to purchase the physical property on all the remaining important streets to any corporation formed for this purpose, with which satisfactory arrangements could be made. This corporation could thus acquire, by purchase, or by construction, the entire principal parts of the railway systems, leaving the few unexpired term grants to be turned over to it upon the best terms that the old companies could obtain or to be acquired by it as they expired thereafter from time to time. This new company could hold and operate the property upon such terms as might be agreed upon between it and the city, and subject to the right of the city to take it over whenever it desired to do so, and had established its legal authority and its financial ability to undertake the enterprise.
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> If the city chose to wait until it had first established its legal and financial ability to undertake municipalization without resorting to the agency of an intermediate corporation, it could, of course, have followed this policy and have permitted the railway companies to continue to operate, at the sufferance of the city. This policy, however, was involved in serious public dis-

[1] Lobdell *vs.* Chicago, 227, Illinois, 218.

advantage. During the prolonged and bitter controversy between the city and the companies, the street railway equipment and service had deteriorated, and comprehensive reconstruction, re-equipment and extension were imperatively necessary. The right of the city to purchase was a right which could be exercised at any time, on six months' notice, by paying the appraised value of the property then constituting the street railways to be acquired.

The power of the city to exact compensation from the companies for the use of its streets had been established by decisions of the Supreme Court of the State. The companies had accepted ordinances exacting large payments of money to the city as compensation. This money had been used by the city for street lighting and constructing viaducts and subways. In any new grant to an intermediate corporation, or in any extension or continuation of the rights of the existing companies, the city proposed to insist upon this right to substantial compensation, so that it might thus acquire funds to be used for the ultimate purpose of acquiring the properties, for constructing central subways for street railway use, or for the care and maintenance of the streets, or any appropriate purpose.

There were three forms in which the payment to the city might be fixed —an annual fixed sum, a percentage of the gross receipts, or a portion of the net receipts. The fairness and superiority of the third plan was apparent, and has long been generally conceded by those who have studied the public utility problem. The difficulty in its adoption, however, has been the refusal of public utility corporations to consent to that degree of supervision of their receipts and expenditures that is absolutely necessary to furnish an adequate guarantee to the public that its interests will be protected under such an arrangement. A plan of measuring the city's compensation by a percentage of the net receipts would obviously not be fair to the companies, unless they were given reasonable assurances that their principal investment would be fairly estimated and adequately protected.

The right of the city to insist at all times that the companies shall furnish adequate street railway facilities had always been recognized, in theory at least, by the company; and the right to make reasonable regulations by ordinances for this purpose had been conclusively established in the courts. In practical operation, however, this power of regulation had been found unsatisfactory and inadequate. Many disputes had arisen from time to time, as to the reasonableness and as to the wisdom of municipal legislation and requirements of this character. It was recognized that the city could not, if it would, part with its power of future legislation by any contract ordinance; *but it was felt that the establishment of a competent Board of Engineers to supervise the rehabilitation of the properties and give their expert judgment upon such differences of opinion as might appropriately be referred to them, would result to the mutual advantage of the company and the city.*

The general principles just discussed were embodied in the ordinances of February 11, 1907. They do not change in any particular any of the fundamental provisions of the company's charter. Neither the character nor the objects of the corporation had been changed in any respect. Before

the ordinance was passed the city had the power to purchase the street railway properties upon a portion of the streets occupied by the companies, or to turn over that right of purchase to another corporation. The value to be paid was merely the value of the physical property at the date of the appraisement. Under the ordinances of February 11, 1907, this right of purchase remains substantially unchanged and the obligation unimpaired. The only change in this respect has been that the value of the properties on June 30, 1906, was fixed by an appraisal then made by three eminently qualified appraisers, in whom both the city and the company had entire confidence.

To this valuation is to be added the actual money expended by the companies hereafter for additions to the property and for such renewals as are properly chargeable to capital account, together with an allowance of ten per cent. as a construction profit, and five per cent. for brokerage upon all such expenditures. The total price thus fixed to be paid in the event of future purchase, must, in the very nature of the case, exceed the value which would, at any future time, be placed by appraisal upon the then existing physical property of the companies. To meet this excess, and to assure the future maintenance and renewals of the system, the ordinance provides for the establishment and maintenance of special reserve funds of six and eight per cent., respectively, to be used, so far as may be, to cover maintenance, repairs, renewals and depreciation. That the companies may have no incentive to fall short of their obligations in this respect, it is provided that any unexpended balance of these funds shall never be returned to the companies, but shall pass to the city or its licensee in the event of future purchase. This provision is not only justifiable on the ground of wise and fair protection of the public interests, but may be considered as a part of the compensation which the city is entitled to exact as a condition for the continued use of the public streets. If the companies are to be protected in their legitimate capital investment, they must certainly be required to protect that investment in the interest of the city, so that at all times the properties shall be kept up to their highest efficiency by adequate expenditures for maintenance, repairs and renewals, and that there shall be an adequate reserve fund to cover depreciation.

Having adopted the theory that the city's compensation should be a percentage of the net receipts, it was necessary to fix fair provisions for determining what should be considered as the net receipts; hence the provision in the ordinances for keeping the accounts in a form to be approved by the city comptroller and for an annual audit and account; hence the provision for paying, out of the gross receipts, the operating expenses, including the expenditures for taxes, insurance, maintenance, repairs, renewals and depreciation; hence the provisions for reasonable limitation of the salaries of officers, agents and attorneys, the sale of worn-out or unnecessary property, and the payment of personal injury claims. Having taken care of all these items, the ordinances provide that the company shall be entitled to reserve an amount equivalent to five per cent. upon the capital investment as an annual interest charge. Not until all these allowances have been made is the amount to which the city is entitled ascertained. Then, and not till

then, is the city entitled to fifty-five per cent. of what are then the net receipts, the remaining forty-five per cent. going to the companies, in addition to the annual interest charge of five per cent. upon its total capital account.

In other words, once having fixed the present value of the property of the companies, and provided that the city must, before it purchases or authorizes a purchase, pay or have paid to the companies this value, together with the cost of subsequent additions, every requirement of the ordinances of February 11, 1907, will be found, upon examination, to be simply a fair and reasonable provision for protecting both the companies and the city, as to the character and cost of these additions and the maintenance and extensions of the properties. Every provision which does not relate to this subject will be found to be a fair and reasonable provision for assuring that the companies shall carry out their obligations to render the public service, which is the only justification for their existence and occupation of the public streets, and for removing or lessening the customary friction between the city and the companies in the fulfillment of their necessary and proper relations to each other.

The ordinances under which the Board of Supervising Engineers is created provided a plan of municipal regulation of a quasi-public corporation organized for individual profit, the municipality participating in the profits without assuming any responsibility, and eventually may become the owner of the property. The regulations prescribed in the ordinances are based upon fair dealing between the public and the corporations, and the production and maintenance of a property and equipment that will make possible the best of service. It is the duty of the Board of Supervising Engineers to see that certain of the provisions of the ordinances are properly carried out.

The ordinances do not confer upon the Board of Supervising Engineers the direct authority to control or regulate the service, except as to a few specific matters; but they do authorize and require the board to exercise the most detailed supervision of the physical property of the street railways upon which the service immediately depends. Good service cannot be rendered without good tracks, good cars and good equipment. Good tracks, good cars and good equipment naturally and powerfully tend to produce good service.

Nevertheless, good service may not be rendered even with the best of railway construction and equipment; and in this event the remedy must be the enactment and enforcement of public regulations under the police powers of the city (which, under these ordinances, are properly reserved), acting through the elected representatives

of the people, the city councils and the mayor. This distinction must be constantly borne in mind in locating responsibility—both credit and censure—for the existing service rendered by the street railways of Chicago.

In order to give good street railway service, the first essentials are:

(1) Good track, properly laid out and connected.

(2) Good cars and equipment in sufficient numbers to properly take care of the riding public.

(3) Commodious car stations, properly designed and equipped, together with proper facilities for inspecting and cleaning the cars daily; and located with respect to the lines operated and the headway of traffic so that the "dead car mileage" will be a minimum for the entire system.

(4) A power system that will insure a minimum first cost of production, and a distribution system that will be the most economical in supplying ample power to all parts of the system in accordance with the demands and within the limits of a predetermined minimum average drop.

The Board of Supervising Engineers, Chicago Traction, since its organization in May, 1907, in addition to having kept a close supervision over the accounts of the companies, has been principally engaged in the design and supervision of the construction of tracks, cars, car stations, sub-stations and an electrical distribution system, to properly put the railroads in condition to furnish first-class service.

The peculiar value of a board of supervising engineers in securing efficient street railway service, to my mind, depends upon two factors:

(1) That its members may consist of engineers who have specialized in street railroad work, and that their entire time and energies may be expended and concentrated on the work of the individual properties under their jurisdiction.

(2) And that the street railway companies, as well as the city, are in direct touch with the work through their representatives on the board, which insures to the city a supervision over the companies that will protect the interests of the general public, and enables the street railway companies to fully protect their individual interests as well.

The Board of Supervising Engineers, Chicago Traction, is composed of a representative from each of the companies, as indicated in the ordinances, a representative of the city, and the third engineer, the latter representing both the city and the companies as chairman of the board. The personnel of this organization, it will be seen at a glance, gives full representation to all of the parties interested.

By the organization of this board, a sort of clearing-house has been established as between the city, the companies and the general public, and at its meetings all problems that arise are discussed and determined at once, or such progress made as will lead to a better and fuller understanding between the parties.

A competent force of engineers and accountants is employed, which, under the direction of the chairman and chief engineer of the work, keeps independent check upon the expenditures of the companies in accordance with the provisions of the ordinances, and in the manner prescribed by the Board of Supervising Engineers. In addition, the engineering force makes plans and specifications, inspects materials and supervises the work of construction, thus placing the board, as an independent organization, in direct contact with the receipts and expenditures of the companies, and the extensions, betterments and renewals of the property.

In brief, I might say, the value of a board of supervising engineers in securing efficient street railway service is plainly evident to any one familiar with the situation in Chicago, where, to-day, after little more than three years of supervision by the board, there are in operation systems of street railways equal in technical and operating efficiency to any in the country. It has been stated, and rightfully so, that the so-called "traction settlement ordinances," together with the Board of Supervising Engineers, have blazed the way for successful regulation of local transportation facilities by the municipality, and the co-ordination of the efforts of the street railway companies with the city and with the street-car riding public toward the achievement of an ideal street railway service.

The city of Chicago, like every other large municipality, will, within a short period of time, be face to face with a very important problem involved in the decreasing financial return on street railway investments, due in part to the increased cost of operation, resulting both from the higher technical standards of track, equipment and service, the increasing average length of ride, and also from the

decreasing average rate of fare due to the more general use of transfers.

The situation which confronts the transportation companies throughout the country is serious, and, unless some satisfactory solution can be found, contains the possibilities of grave dangers. The greatest difficulty which surrounds the satisfactory solution of this matter is the total non-acquaintance of the public at large with the nature of the problem.

I believe that one of the most valuable services which the state commissions, and other organizations intrusted with the duty of supervising street railway service and charges, can perform is to conduct a campaign of education which will place before the public the real facts of this problem.

The influence of such a board is toward good service—the best that can be afforded for the rate of fare paid. The street railway business, like any other business, must be a commercial success in order to permit it to live and give efficient service.

Much agitation has appeared in recent years, particularly in some large cities, over the question of a reduction in the rate of fare. The flat rate of 5 cents for a street-car ride in one general direction within the city limits regardless of its length, including transfers when necessary, has been the almost universal practice in American cities. In some instances six tickets for 25 cents, and other rates of fare during certain hours, have been in force; and a 3-cent rate of fare has been agitated, and is still being talked and argued, particularly in the cities of Cleveland and Detroit. This agitation for lower fares has resulted largely from incorrect information which the general public has acquired, through improper accounting on the part of the companies, which have in many instances used the earnings of the road to pay high dividends instead of applying a proper proportion of such earnings to repairs and renewals. The result has been an erroneous showing of high net earnings at the expense of a depreciated property or an inflated capital account, or both.

In many instances where the 3-cent fare agitation has taken tangible form it has been made a political issue, and the local street railway question has been used by politicians for their political advancement rather than for the purpose of adjusting the issue upon a fair and equitable basis as between the city and the company.

The income of street railway companies and kindred transporta-

tion companies is being constantly reduced per passenger carried, due to the granting of transfer privileges, free rides, etc.; and the net profits have been still more reduced by the increased length of average haul and the higher rate of wages and increased cost of materials. It is now a debatable question whether the rate of fare for pay passengers should not be increased rather than diminished, and whether it would not be practicable and more equitable to have a sliding scale of fare based upon the distance a passenger is carried rather than a flat rate of fare, requiring, in reality, a short-haul rider to pay a part of the cost to furnish service to the long-haul rider.

The ability of the suface lines to meet these reductions and live is due to superior technical efficiency and more economical operation, an increase in the density of population in the territory served, and an increased percentage of short-haul riders.

As a city grows in population and area, the street congestion increases, and high-speed roads, such as elevated roads and subways, become necessary. The cost of such lines per mile of track operated or per passenger carried is greatly in excess of the cost per mile of surface track operated or per passenger carried. All of these problems involve questions of financing and capital charges, a fair return upon the investment, and the responsibility of the municipal government in the premises, as well as the obligation of the transportation company.

Local transportation in the larger cities is a very complex and much involved question, requiring the services of experienced and competent men, actuated by the highest motives.